

REMARKS

Claims 1, 3, 5-6, 21-23, and 25-26 were examined and reported in the Office Action. Claims 1-3, 5-6, 21-23, and 25-26 are rejected. Claims 2 and 22 are canceled. Claims 1 and 21 are amended. Claims 1, 3-21, and 23-40 remain. Attached hereto is a marked-up version of the amendments to the application as indicated above.

Applicant requests reconsideration of the application in view of the following remarks.

I. 35 U.S.C. § 112, second paragraph

It is asserted in the Office Action that claims 2 and 22 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has cancelled claims 2 and 22.

Accordingly, withdrawal of the 35 U.S.C. § 112, second paragraph rejection for claims 2 and 22 is respectfully requested.

II. 35 U.S.C. § 103(a)

It is asserted in the Office Action that claims 2, 5, 22 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's prior art illustrated in Figures 1 and 2 in view of U.S. Patent No. 5,427,212 issued to Shimazu et al. ("Shimazu"). Applicant respectfully disagrees.

It is asserted in the Office Action that Shimazu shows "a curving design to vanes 22." Shimazu, however, discloses a plurality of fins 22, where the plurality of fins are contained in, and specifically designed for, a brake rotor, i.e. the fins/vanes disposed between two discs of a rotor. In Shimazu, the fins 22 (and 21) do not serve the purpose of a standoff, which is known to those skilled in the art as a place to attach a hub/mounting hat to a brake rotor, where it is inherent to space apart the

hub/mounting hat from the rotor. It is well known in the art that standoffs in a hub/mounting hat do not serve the same purpose as a vane/fin within a rotor.

Further, it is asserted in the Office Action that Shimatzu is relevant for "teach[ing] the concept of providing a curve design instead of a straight design of vanes F in order to improve air flow to increase heat removal." (Office Action, page 3). Shimatzu, however, does not teach, disclose or suggest anything to do with a hub/mounting hat, nor to use standoffs as vanes in a mounting hat/hub to add an additional cooling effect to an outboard rotor disc. The problem that Shimatzu deals with is the known cooling effect fins/vanes have for interior sides of rotor discs. Since the art of vehicle brakes has a long history, and that vanes, blades, fins, etc. have also been around for quite some time, then if Applicant's claimed invention is obvious, why hasn't someone skilled in the art even suggested using a standoff to add additional cooling to a rotor?

Moreover, "[I]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." (In re Fritch, 972 F.2d 1260, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992) (quoting In re Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)). The point in time that is critical for an obviousness determination is at the time of invention. "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." (W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983)). Additionally, obviousness cannot be established by hindsight combination to produce the claimed invention. (In re Gorman, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed.Cir.1991)).

Applicant's aerodynamic standoff vanes are not disposed in a rotor. Applicant's aerodynamic standoff vanes provide additional directed cooling to a brake rotor by specifically directing airflow through vents formed between standoff vanes, where this additional directed cooling effect has never been contemplated before. The prior art

does not direct cooling since the shape of the prior art standoffs are squared. There is no teaching, suggestion or motivation from the disclosure of Shimazu to arrive at Applicant's claimed invention. Simply put, the purpose of mounting hat/hub standoffs, as known to those skilled in the art, is to provide a mounting surface and elevation from a mounting plate or hub to a brake rotor. Applicant's claimed invention goes outside the knowledge of those skilled in the art by designing standoffs that direct "air located within said hub and air deflected from said rotor [to be] induced to substantially flow through the plurality of vents in a direction outward from a radial interior of said hub to a radial exterior of said hub." This improvement was never considered in the art of brake rotors and mounting hats.

Still further, Applicant has amended claim 1 to contain the limitations of "...air located within said mounting hat and air deflected from said brake rotor are induced to substantially flow through the plurality of vents in a direction outward from a radial interior of said mounting hat to a radial exterior of said mounting hat." Applicant has also amended claim 21 similarly.

Neither Shimazu, Applicant's admitted prior art, or the combination teach, disclose or suggest the limitations contained in Applicant's amended claims 1 and 21. Therefore, for the above reasons, even if one skilled in the art of brake rotors and mounting hubs were to combine all the teachings of Applicant's figures 1 and 2 and Shimazu, there would still not be any motivation to arrive at Applicant's claimed invention.

Since neither Shimazu nor Applicant's prior art teach, disclose or suggest the limitations contained in Applicant's amended claims 1 and 21, from which claims 3 and 5-6, and 21, 23 and 25-26 depend on, respectively, it would not have been obvious to one of ordinary skill in the art to combine the teachings of Applicant's admitted prior art in view of Shimazu.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejections for claims 2, 5, 22 and 25 are respectfully requested.


CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely 1, 3-21, and 23-40, patentably defines the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN

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By: 
Steven Laut
Reg. No. 47,736

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(310) 207-3800

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office, Box AF, Commissioner for Patents, Washington, D.C. 20231, on the date shown below.


Linda D'Elia

September 30, 2002

Attachment: Version With Markings To Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 2 and 22 have been canceled.

Claims 1 and 21 have been amended as follows:

1. (Three Times Amended) A mounting hat for a brake rotor comprising:
a lower section coupled to an upper section,
a plurality of aerodynamically shaped standoff vanes each having a leading edge, a trailing edge, a top, and a bottom coupled to the upper section, the aerodynamically shaped standoff vanes space apart the upper section from a brake rotor, wherein the leading edge and the trailing edge are curved; and
a plurality of vents formed between adjacent aerodynamically shaped standoff vanes, wherein the vents are circumferentially distributed on the upper section, and air located within said mounting hat and air deflected from said brake rotor flow is are induced to substantially flow through the plurality of vents in a direction outward from a radial interior of said mounting hat to a radial exterior of said mounting hat.

21. (Three Times Amended) A brake rotor comprising:
a rotor,
a hub coupled to the rotor, said hub having a plurality of aerodynamically shaped standoff vanes each having a leading edge, a trailing edge, a top, a bottom and a plurality of vents formed between adjacent aerodynamically shaped standoff vanes ~~coupled to the rotor~~, wherein the vents are circumferentially distributed between the hub and the rotor, air flow located within said hub and air deflected from said rotor is are induced to substantially flow through the plurality of vents in a direction outward from a radial interior of said hub to a radial exterior of said hub, the aerodynamically shaped standoff vanes space apart the hub from the rotor, and the leading edge and the trailing edge are curved.